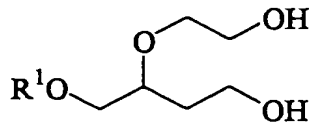
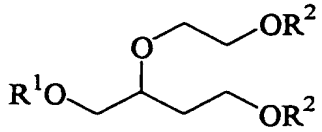
CLAIMS

1. A process for preparing a butanetriol derivative of the formula (1)



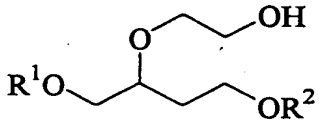
(1)

which comprises subjecting a compound of the following formula (4) or (4a) to deprotection reaction



(4)

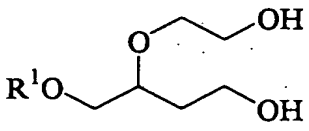
or



(4a)

wherein in the above formulae, R^1 and R^2 are the different each other and are protecting groups for alcohol and said protecting groups such that only R^2 is removed when the deprotection reaction is carried out.

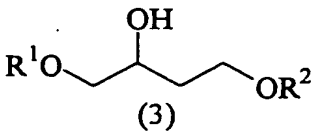
2. A process for preparing a butanetriol derivative of the formula (1)



(1)

wherein R^1 is the same defined above,

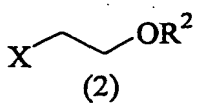
which comprises reacting a compound of the formula (3)



(3)

wherein R^1 and R^2 are the same defined above,

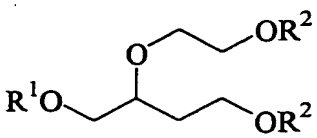
and a compound of the formula (2)



(2)

wherein X is halogen atom or sulfonyloxy group, and R^2 is the same as defined above,

in a basic condition to prepare a compound of the formula (4)

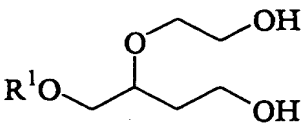


(4)

wherein R^1 and R^2 are the same defined above,

and then subjecting the compound (4) to deprotection reaction.

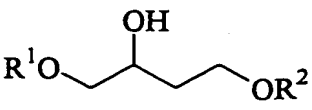
3. A process for preparing a butanetriol derivative of the formula (1)



(1)

wherein R^1 is the same defined above,

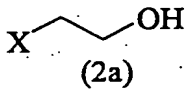
which comprises reacting a compound of the formula (3)



(3)

wherein R^1 and R^2 are the same defined above,

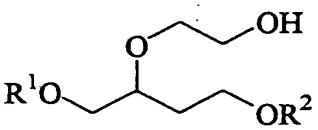
and a compound of the following formula (2a)



(2a)

wherein X is halogen atom or sulfonyloxy group,

or ethylene oxide in a basic condition to prepare a compound of the formula (4a)

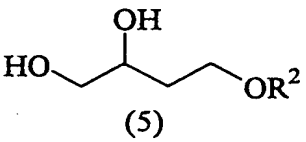


(4a)

wherein R^1 and R^2 are the same defined above,

and then subjecting the compound (4a) to deprotection reaction.

4. A process for preparing a compound (1) which comprises protecting primary hydroxy group for a compound of the formula (5)

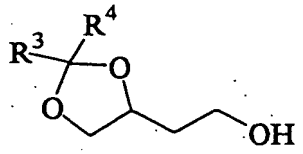


(5)

wherein R^2 is the same as defined above,

and then carrying out the process of claim (2) or claim (3).

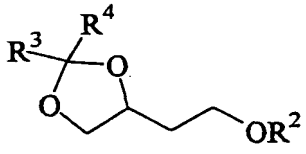
5. A process for preparing a compound (1) which comprises protecting a compound of the formula (7)



(7)

wherein R^3 and R^4 are the same or different and are hydrogen, C_1-C_4 alkyl or phenyl, or may form a C_3-C_6 cycloalkyl with the adjacent carbon atom,

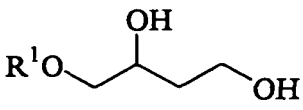
with a protecting agent of alcohol to prepare a compound of the formula (6)



(6)

wherein R^2, R^3 and R^4 are the same as defined above, and then treating the compound (6) with an acid to prepare a compound (5) and then carrying out the process of claim (4).

6. A process for preparing a compound (1) which comprises protecting primary hydroxy group for a compound of the formula (8)



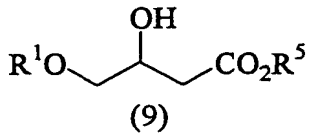
(8)

wherein R^1 is the same as defined above,

to prepare a compound (3) and then carrying out the process

of claim (2) or claim (3).

7. A process for preparing a compound (1) which comprises reducing a compound of the formula (9)

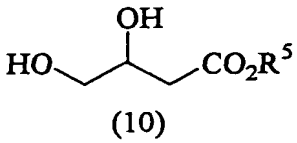


(9)

wherein R^5 is C_1-C_6 alkyl, C_3-C_6 cycloalkyl, phenyl, C_1-C_6 alkyl substituted phenyl, aralkyl or 2-alkenyl, and R^1 is the same as defined above,

with an aluminum-reducing agent or a boron-reducing agent, to prepare a compound (8) and then carrying out the process of claim (6).

8. A process for preparing a compound (1) which comprises protecting primary hydroxy group for a compound of the formula (10)



(10)

wherein R^1 is the same as defined above,

to prepare a compound (9) and then carrying out the process of claim (7).

9. The process for preparing a compound (1) according to any of claims 1 to 8, comprising using compound (3) and compound (4) or (4a), wherein the protecting groups, R^1 and R^2 in compounds (3) and (4) or (4a) are different each

other and are protecting groups selected from the group of silyl ether-protecting groups, phenyl substituted methyl-protecting group and acetal-protecting groups, and that only R^2 is removed when the deprotection is carried out.

10. The process for preparing a compound (1) according to claim 9, wherein the protecting groups, R^1 and R^2 in compounds (3) and (4) or (4a) are a silyl ether-protecting group and a phenyl substituted methyl-protecting group, respectively.

11. The process for preparing a compound (1) according to claim 9, wherein the protective groups, R^1 and R^2 in compounds (3) and (4) or (4a) are a phenyl substituted methyl-protecting group and a silyl ether-protecting group, respectively.

12. The process for preparing a compound (1) according to claim 9, wherein the protecting groups, R^1 and R^2 in compounds (3) and (4) or (4a) are a silyl ether-protecting group and an acetal-protecting group, respectively.

13. The process for preparing a compound (1) according to claim 9, wherein the protecting groups, R^1 and R^2 in compounds (3) and (4) or (4a) are an acetal-protecting group and a silyl ether-protecting group, respectively.

14. The process for preparing a compound (1) according to claim 9, wherein the protecting groups, R^1 and R^2 in compounds (3) and (4) or (4a) are a phenyl substituted

methyl-protecting group and an acetal-protecting group, respectively.

15. The process for preparing a compound (1) according to claim 9, wherein the protecting groups, R^1 and R^2 in compounds (3) and (4) or (4a) are an acetal-protecting group and a phenyl substituted methyl-protecting group, respectively.

16. The process for preparing a compound (1) according to claim 9, wherein the protecting groups, R^1 and R^2 in compounds (3) and (4) or (4a) are trityl and benzyl, respectively.

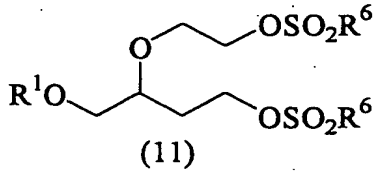
17. The process for preparing a compound (1) according to any of claims 2 to 16, comprising reacting compound (2), (2a) or ethylene oxide with compound (3) in an aprotic solvent.

18. The process for preparing a compound (1) of claim 17, wherein the aprotic solvent is N,N-dimethylformamide or dimethyl sulfoxide.

19. The process for preparing a compound (1) according to any of claims 2 to 18, comprising using an alkali metal hydride, hydroxide or carbonate as a base in reacting compound (2), (2a) or ethylene oxide with compound (3).

20. The process for preparing an optically active compound (1) according to any of claims 1 to 19, comprising using a optically active starting material.

21. A process for preparing a compound of the following formula (11) or its optically active compound

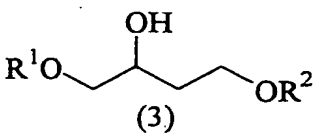


(11)

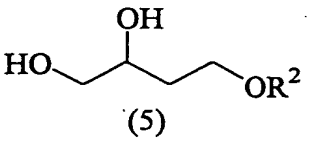
wherein R^6 is C_1-C_6 alkyl, C_3-C_6 cycloalkyl, phenyl, C_1-C_6 alkyl, hologen-substituted phenyl or nitro-substituted phenyl and R^1 is the same as defined above,

which comprising preparing a compound (1) by the process of any of claims 1 to 20 and then subjecting the compound to sulfonyl esterification.

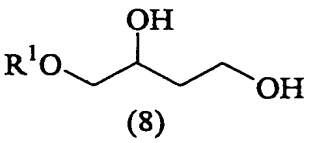
22. A compound of the following formula (3), (5) or (8) or its optically active compound



(3)



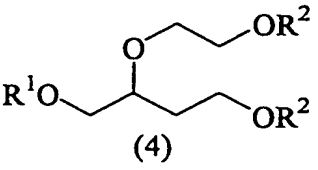
(5)



(8)

wherein R^1 and R^2 are the same as defined above.

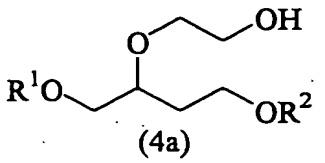
23. A compound of the following formula (4) or its optically active compound



(4)

wherein R^1 and R^2 are the same as defined above.

24. A compound of the following formula (4a) or its optically active compound



(4a)

wherein R^1 and R^2 are the same as defined above.